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Responses of *Chelydra serpentina* and *Chrysemys picta* to the Musk of Other Turtles

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Abstract

A Y-shaped maze was used to test the responses of snapping turtles, *Chelydra serpentina*, and painted turtles, *Chrysemys picta*, to the musk of *Chelydra serpentina*. The musk attracted conspecifics of the opposite sex and repelled individuals of the same sex. Responses of immature conspecifics were varied. The musk of *C. serpentina* also repelled individuals of a different species, *Chrysemys picta*. The experiments were repeated using the musk of the musk turtle, *Sternotherus odoratus*. All turtles tested were repelled by the musk of *S. odoratus*, which is thought to be used as a deterrent to predation (Carr, 1952).

The common snapping turtle, *Chelydra serpentina*, has lateroventral exocrine glands which secrete a musk almost as potent as that of the musk turtle, *Sternotherus odoratus* (Carr, 1952). Although the musk of *S. odoratus* is thought to be used a deterrent to predation, the function of the musk of *C. serpentina* is unknown. An analysis of the musk of *C. serpentina* is lacking; however, the musk of *S. odoratus* is composed of four w-phenylalkanoic acids with some lesser components (Eisner et al., 1977). The purpose of the experiments reported herein was to determine responses of *C. serpentina* and *C. picta* to the musk of *C. serpentina* and *S. odoratus*.

Five snapping turtles, six painted turtles (*Chrysemys picta*), and two musk turtles (*Sternotherus odoratus*), captured in the Silver Spring Pond area in North Kingstown, Rhode Island, were used in this study. Of the specimens of *C. serpentina*, two were mature males (20.3 cm and 21.5 cm carapace length), two were immature (8.9 cm and 9.5 cm), and one was a mature female (24.1 cm). Sex was determined by pre-anal tail length (Ernst and Barbour, 1972). Two painted turtles were mature males, two were mature females (approximately 15.5 cm), and two were immature (approximately 7.5 cm). Sex was determined by length of claws, shape of the plastron, and preanal tail length (Ernst and Barbour, 1972). Of the two musk turtles, one was a mature male, the other a mature female (both approximately 14 cm). The experiments were repeated ten times using the musk of each specimen of *C. serpentina* and five times using the musk of *S. odoratus*.

A Y-shaped maze was constructed in the watershed feeding this pond by diverting part of the flow through a trench adjacent to the stream. The trench branched and then joined, thereby forming a Y-maze. The arms of the maze were 0.6 m in length; the choice chamber was 1.0 m long.

After a test animal was placed in the choice chamber at the base of the maze; a turtle, placed in one arm of the maze to produce musk, released musk when it was prodded on the carapace with a stick. Each snapping turtle was used both as a scent producer and as a test animal. The painted turtles were used only as test animals, and the musk turtles were used only as scent producers. Water containing musk from a specific turtle was allowed to flow through one branch of the maze, and an equal volume of unscented water was allowed to flow through the other. Movements of the test animal were observed. The results were scored as positive if the test animal moved into the scented arm of the maze, negative if into the unscented arm.

Results

Chelydra serpentina responses to conspecifics:

The experiments showed that adult snapping turtles were attracted to the musk of conspecifics of the opposite sex more often, but responded to the musk of the same sex by moving into the unscented arm of the maze (Table 1). The musk of immature specimens resulted in variable responses by the test animals.

Chrysemys picta responses to *Chelydra serpentina*:

C. picta individuals tended to move into the unscented arm of the maze (Table 2).

Chrysemys picta and *Chelydra serpentina* responses to *Sternotherus odoratus*:

The results of the experiments using musk turtles as scent producers showed that most turtles moved into the unscented arm of the maze (Table 3).

Table 1. Results of testing *Chelydra serpentina* against the musk of conspecifics. Results are shown here as the percentage of positive responses (see text). Each individual was tested ten times.

		Scent-producing Turtles				
		1 (♀)	2 (juv.)	3 (juv.)	4 (♂)	5 (♂)
Test Turtles	1 (♀)	—	10	90	100	100
	2 (juv.)	0	—	60	70	90
	3 (juv.)	40	70	—	50	10
	4 (♂)	100	80	10	—	10
	5 (♂)	100	80	0	0	—

Table 2. Results of testing *Chrysemys picta* against the musk of *Chelydra serpentina*. Results are shown here as the percentage of positive responses (see text). Each individual was tested ten times.

		Scent-producing Turtles (*Chelydra serpentina*)				
		1 (♀)	2 (juv.)	3 (juv.)	4 (♂)	5 (♂)
Test Turtles (*Chrysemys picta*)	1 (♀)	10	20	0	10	10
	2 (♀)	10	40	10	0	0
	3 (juv.)	10	0	0	10	0
	4 (juv.)	20	20	10	10	10
	5 (♂)	0	10	20	0	10
	6 (♂)	10	10	50	20	10

Table 3. Results of testing *Chrysemys picta* and *Chelydra serpentina* against the musk of *Sternotherus odoratus*. Results are shown here as the percentage of positive responses (see text). Each individual was tested five times.

		Scent-producing Turtles (*Sternotherus odoratus*)	
		1 (♂)	2 (♀)
Test Turtles (*Chelydra serpentina*)	1 (♀)	0	10
	2 (juv.)	0	0
	3 (juv.)	20	0
	4 (♂)	40	0
	5 (♂)	0	0
Test Turtles (*Chrysemys picta*)	1 (♀)	0	0
	2 (♀)	0	0
	3 (juv.)	0	0
	4 (juv.)	0	0
	5 (♂)	20	0
	6 (♂)	0	0

Discussion

Because specimens of both sexes responded positively to the opposite sex, the musk of *C. serpentina* could be useful for attracting a mate. The experiments were performed in June and July, during the snapping turtle mating season (Carr, 1952). That specimens of the same sex were repelled may indicate that the musk of *C. serpentina* could be useful as a spacing mechanism. Most turtles tested were repelled by the musk of *S. odoratus*, perhaps indicating a strong protective feature for *Sternotherus*. The musk of *C. serpentina* and *S. odoratus* may serve the same function; however, the responses of *S. odoratus* were not tested.

In summary, these experiments show that the musk of *C. serpentina* might be useful in sexual behavior or as a spacing mechanism or a warning signal.

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Egg-laying at Low Temperature in a Captive Red-eared Slider, *Trachemys scripta elegans*

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Initiation of nesting and egg-laying in turtles is partially controlled by climatic conditions during the laying season. If those conditions are not favorable, the shelled eggs are retained in the oviducts until circumstances become better. However the statement "favorable climatic conditions" is not well defined at all. Gibbons and Greene (1990) state:

Temperature is clearly critical for a reptile that is leaving the water to lay eggs, and there should be little argument that below a certain temperature turtles will not nest. Despite observational data from many years, establishing precise relationships between egg laying and environmental variables must come ultimately from experimental efforts.

Here I report the nesting by a captive red-eared slider, *Trachemys scripta elegans*, under what I consider to be "unfavorable climatic conditions." On 24 June 1996 at 1545 h a captive female *Trachemys scripta elegans* was seen digging a nest hole in an outside enclosure at Hofstade, Belgium. The weather was cloudy with some rain falling. Air temperature ranged between 13 and 14°C. At 1700 h, I dug up eight eggs from the nest, which by that time had been covered. The depth of the flask-shaped nest was 10 cm and the temperature of the substrate (moist sand) measured at the same depth, 15 cm away from the nest, was 15.6°C.

Egg length ranged from 30.5 to 34.3 mm and egg width between 19.5 and 21.0 mm. Total egg mass was 64 g. The eggs were incubated at 30.5–31.0°C but did not develop.

In this case, not only the low nesting temperature is exceptional but so was the period, since the laying season at my place normally extends from the middle until the end of July with some females producing a second clutch one month later.

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Gibbons, J. W., and J. L. Greene. 1990. Reproduction in the slider and other species of turtles. Pp. 124-134. *In*: J. W. Gibbons, editor, Life history and ecology of the slider turtle. Washington, DC: Smithsonian Institution Press.

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The Mediterranean Gecko, *Hemidactylus turcicus*, in Prattville, Alabama

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Ever since I entered the United States Air Force in the late 60s, I have made it a point to check out the local area to see what kind of herps were there. This involved reading herp books, or just driving around the area to see what I could find. From Viet Nam to northern Maine I found quite a few different species, but I never thought I would find a lizard native to the Mediterranean in Prattville, Alabama. In 1993, much to my surprise, I found a juvenile Mediterranean gecko (*Hemidactylus turcicus*) on the floor of the newsroom where I work. Although there was no visible sign of trauma, the lizard was barely alive. The building is routinely sprayed for roaches, so it's possible the lizard may have eaten some pesticide-laden roaches. I discovered one more of these geckos in 1995 on the back dock area of the building. This one was lying next to a crack in the cement and disappeared into it when I got too close. So far this year a total of five lizards have been found. Two were found in the darkroom. When the lights are turned on you can see the lizard scurrying across the wall. One was found on a wall when we were moving some boxes, and two more were found outside next to a newspaper rack.

So what is a gecko native to the Mediterranean area doing in Prattville, Alabama? According to Mark Bailey, a zoologist with the Alabama Heritage Program, several populations have been discovered in Alabama. Eufaula and Opelika each have a breeding population according to Bailey. Funchess Hall on the Auburn University campus also has a breeding population. It seems that wherever there are an abundance of herpetology students, introduced reptiles have a tendency to turn up. Bailey said that these lizards are very common in peninsular Florida, as well as parts of Texas and Louisiana, and many of them are brought into the state from people transporting potted plants from Florida. The lizards as well as some eggs are getting a free ride into Alabama.

Mediterranean gecko, *Hemidactylus turcicus*. Photograph by the author.

These geckos seem to be more common in occupied buildings than in wooded areas. Males will defend favorite foraging areas. Apparently they do not compete with the green anole (*Anolis carolinensis*), as the anole is diurnal and the gecko is nocturnal. They probably feel quite at home in the darkroom at the newspaper.

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Notes on the Incubation of Eggs of the Yellow Mud Turtle, *Kinosternon flavescens flavescens*

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During spring 1992, two *Kinosternon flavescens flavescens* (adult male and female) were collected alive off a road in southwest Coleman County, Texas. They were brought back to the laboratory to become a part of a communal aquatic vivarium, which is maintained for educational purposes, primarily tours conducted for elementary and secondary schools of Coleman, Runnels and Concho counties, Texas. Since this species is primarily aquatic, both turtles were confined within a shoreless aquatic vivarium along with several other species of aquatic turtles. This vivarium contains a volume of 54 l of fresh water; is 30 cm deep and provided with a concrete cinder block plus overhead light source for basking and hiding activities. The water temperature was maintained at 26.8°C with a photoperiod of 24 h fluorescent lighting. All captive turtles were maintained on a daily diet of dead minnows (*Notemigonus crysoleucas*) supplemented by Tetra DoroMin floating foodsticks plus chopped lettuce leaves. This diet was similar to the omnivorous diet of wild specimens cited by Mahmoud (1968) and Punzo (1974). Water quality was maintained by changing half of the water volume monthly and equipping the vivarium with an AquaClear 200 biological/mechanical filtration system with a flow rate of 757 l/h. The filter was cleaned daily. Ambient room temperature ranged between 18.3 and 22.2°C.

At 0900 h on 5 August 1995, the male and female *K. flavescens* were observed copulating. Although this record of copulation is late in the season, Taylor (1933) reported captive *K. flavescens* mating on 29 October. The turtles' measurements after copulation were: male carapace length (CL) 115.8 mm; carapace width (CW) 83.9 mm; weight (Wt) 233.2 g; female CL 117.2 mm; CW 83.3 mm; Wt 319.7 g. Measurements were made with dial calipers to the nearest 0.1 mm. The carapace length of sexually mature *K. flavescens* has been reported to range from 80.0 to 165.0 mm (Mahmoud, 1967; Conant and Collins, 1991; and Iverson, 1979).

On 27 September, the female *K. flavescens* produced a single clutch of four eggs, which were deposited submerged on the bottom of the vivarium. This occurrence of oviposition reported here is similar to that observed by Ernst and Barbour (1972), who suggested a nesting season of captive *K. flavescens* as July and August. Mahmoud and Klicka (1972) reported egg-laying usually occurred from May to early June. The eggs were recovered, placed on damp toweling, covered by damp toweling, and placed in a 1.6-liter glass dish. This dish was covered by a plastic sheet to maintain humidity and initially placed near an east-facing window for incubation. On 9 October, because of cold temperatures, they were removed from this incubation site and placed upon the vivarium light source housing for continued incubation. An initial temperature reading of the housing was 41.5°C; therefore, plastic spacers were placed beneath the dish which decreased the temperature to a level of 27.0°C. Lardie (1975) reported a successful mean incubation temperature of 27.2°C for eggs of captive *K. flavescens*. According to numerous authors (Pope, 1939; Anderson, 1965; Smith, 1956; Stebbins, 1954; Ernst and Barbour, 1972), captive *K. flavescens* have a clutch range of 1 to 4 ova. Mahmoud and Klicka (1972) stated that clutch size averages 5, ranges from 4 to 5, and furthermore found no correlation between body size and egg clutch size. However, in another study, Ernst (1970; 1976) reported for *Clemmys guttata* a slight correlation between egg number, egg size and plastral length of laying females; with the larger (older?) females laying more and slightly larger eggs. The similar findings of Cagle (1944) on *Trachemys scripta elegans*, Einem (1956) on *K. baurii*, and Tinkle (1961) on *Sternotherus odoratus* support the previous correlation that female reproductive potential is proportional to increased body size (carapace length). Christiansen and Dunham (1972) suggested a standard clutch size of 4 eggs with a potential of 1 to 6 eggs per clutch based upon the large number of specimens they found with oviducal eggs.

The eggs were oval-shaped (width over half the length) with hard, white (2.5Y, 8/0, Munsell Color, 1975) shells. The means and ranges for length (L), width (W), and weight (Wt) were as follows: L 28.2 mm (27.4–29.7); W 16.7 mm (16.1–17.3); and Wt 4.8 g (4.4–5.2), N = 4. In comparison, Ernst and Barbour (1972) reported egg lengths ranging from 24.0 to 28.5 mm and width ranging from 13.5 to 16.5 mm. Mahmoud and Klicka (1972) reported a mean length of 27.5 mm (range 23.0–31.0) and mean width of 17.5 mm (range 14.5–17.5). All linear measurements were made with dial calipers.

The length of incubation was 122 and 125 days. Punzo (1975) suggests that variation of the incubation period reflects physical differences in local environmental conditions such as the incubation medium moisture, medium and air temperature, and humidity. Eggs were candled several times by holding them near a strong light. Of the four eggs, two seemed infertile but all were incubated. Handling of the eggs was minimal.

The incubating eggs were observed daily at 0800 and 1645 h. Each week during incubation, water was sprinkled on the toweling to maintain humidity in the dish. After 90 days of incubation the fertile eggs were immersed in 27.8°C water for one minute and thereafter every third day until hatching. Ernst et al. (1994) found that young are stimulated to hatch after the eggs are immersed in water.

At 0800 h, 8 January 1996, 104 days after oviposition, single longitudinal slits were observed on both developing eggs. Two hatchlings emerged 122 and 125 days after initiation of incubation. At 0800 h, 22 January, turtle #1 was observed post-emergence. At 0800 h, 25 January, turtle #2 was in the process of emerging from its egg. By 0900 h, its

head was protruding out of the shell and by 1400 h it had fully emerged.

Hatchlings were measured after emergence. Hatchling CLs (measured to the nearest 0.01 mm using dial calipers) were 20.12 and 20.23 mm (mean 20.175 mm; SD 0.055); CWs at midpoint were 10.71 and 10.74 mm (mean 10.725 mm; SD 0.015); plastron lengths were 19.57 and 19.97 mm (mean 19.77 mm; SD 0.20); plastron widths were 10.42 and 10.49 mm (mean 10.455 mm; SD 0.035); and weights (measured to the nearest 0.1 g using an electronic balance) were 3.4 g and 3.5 g (mean 3.45 g; SD 0.05). Each eggshell weighed 0.7 g. The thickness of eggshells for both fertile and infertile eggs was 0.29 mm. The hatchlings, which have been retained in captivity, are actively feeding and growing in size.

Acknowledgements

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Book Review: *Health and Welfare of Captive Reptiles* edited by Clifford Warwick, Fredric L. Frye and James B. Murphy 1995. Chapman and Hall, London. Hardbound, xiii + 299 pp. $119.00

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The three editors and 17 other contributors are all well-known and highly respected herpetologists. Besides the editors, many of the contributors will be familiar names to CHS members who regularly read herp literature. Clifford Warwick is the director of the UK Institute of Herpetology. Fredric Frye, currently director of the Fund for Clinical Research, California, is perhaps the world's best-known herp vet. Among his numerous publications is the herp vet "bible," the two-volume *Reptile Care: An Atlas of Diseases and Treatments*, published in 1991 by TFH (and simultaneously by Krieger Publishing as *Biomedical and Surgical Aspects of Captive Reptile Husbandry*). He also gave a plenary lecture at the Second World Congress of Herpetology in Adelaide, Australia. James Murphy recently retired as reptile curator at the famous Dallas Zoo, which boasts one of the world's finest reptile collections. Many of the books and papers he edits are marketed through the SSAR, one of the world's largest herp societies.

Health and Welfare of Captive Reptiles contains the obligatory contents, list of contributors, acknowledgments, general introduction and index as well as 11 chapters, each dealing with a specific aspect of reptile health and/or welfare. The book is technical in terms of the way it is written and set out. It does to a large extent go little further than review material published elsewhere. The chapters are of similar format, each having an introduction, sections covered under specific topics, and ending with a list of references cited.

After reading the book, I couldn't help but feel disappointed with it. The book will be of little use to most keepers at the forefront of reptile husbandry, nor will it give much insight into improving husbandry efforts of most keepers for most species. There are several reasons for this. The scope of the book is perhaps too broad, in that it covers all types of reptile from sea turtle to crocodile, to snake and lizard. Therefore many of the various comments made are either too generalized to be of much use or could rather be termed simple common-sense statements. The comment on page 85, "Some reptiles are highly selective in their choice of food; others are much less so," typifies this sort of statement. While there is nothing fundamentally wrong with such statements, the fact remains they will be of little use to the keeper whose only concern is (for example) a black-headed python that has gone off its food.

Much of the book seems based on the theory that wild reptiles are somehow better off and less stressed than their captive counterparts (page 2) and more than once keepers are urged to make their cages as much like the animal's so-called natural surroundings as possible. Such sweeping comments can be downright dangerous for many captive reptiles. Ask any experienced keeper of green tree pythons the best way to keep these snakes and the answer will always be the same—simple cages are best! A similar situation exists for many other reptiles. A number of authors appear to imply that captive reptiles are deprived of useful stimuli experienced by their wild counterparts, and then place great importance on this assertion. I believe that the old theory that a caged reptile is like a human in a jail cell is outdated, redundant and untrue. By many indicators well-kept captive reptiles appear to have superior lives to their wild counterparts. These indicators include body condition, longevity and reproductive success. Concepts such as freedom or captivity, while clear to humans, may not be terribly important, if at all, to most reptiles. Perhaps I should also remind readers here of Rick Shine's black snakes that he studied in parts of New South Wales (Australia). For many of those snakes their so-called freedom in the wild resulted in premature death by starvation during a long drought. Caged captive snakes that are properly cared for would never suffer such a slow, agonizing death.

Each chapter has an extensive bibliography. While this is a necessary consequence of the book's format, the sheer size of these bibliographies is in itself a bit of a problem. A number of citations are of only peripheral relevance to the subject discussed in the text (where they were cited), and I believe the usefulness of the bibliographies would have been greatly enhanced if more relevant citations were somehow highlighted. While this may not be a current convention, it would have served to make the book far more user-friendly.

The relative lack of user-friendliness of the book is by far its greatest shortcoming. I am uncertain as to whom to blame this on, but I think the publisher, designer(s) and editors must all share the blame. The book had a relative lack of pictures and diagrams, which would have made the book more useful to readers. The small number of diagrams and pictures included were generally relevant and high quality. A number of minor points also detracted from the content of the book. The front cover was uninspiring. The main photo (covering the whole front cover area) was of trees in a swamp, the only sign of reptile being a tiny unidentifiable freshwater turtle at the far bottom of the cover, which can only be seen after a very close examination. The three inset photos of a tortoise X-ray, captive iguana and a microscope slide are too small to be seen at any distance. While the photographers are credited on the back cover, there are no captions for the photos. In other words, a reader wouldn't really know what they are looking at. The main cover photo could be anywhere from North America to Southeast Asia or Europe. Such an omission

should not have been allowed by a professional editor.

One of the most common and major justifications for having captive reptiles is breeding them. This book has very little practical information on this topic, making it essential for keepers to look elsewhere for guidance. While the book is a useful contribution to herpetology generally, it doesn't seem to have been compiled with a specific purpose or target audience in mind. Much of its effort will in my view, therefore be wasted.

Keepers wanting to know more about husbandry and how to improve their breeding successes will find many more useful publications, including for example the many inexpensive publications put out by Advanced Vivarium Systems. The book itself looks like a $40 book. The price quoted at the beginning of the review is not a misprint: $119 in the U.S., or $126.95 in Australia, places the book beyond the reach of most potential buyers. Most keepers will find more useful alternatives available for far less.

Bull. Chicago Herp. Soc. 31(11):207, 1996

The Tympanum

Thank you . . . for making this year's 14th annual HerPETological Weekend a success. The Academy welcomed over 2300 persons through our doors. Both the Herpetological Society and the Academy enjoyed heightened visibility, thanks to paid advertising in the *Chicago Tribune*, *Chicago Parent*, and media coverage on Channels 5, 7 and Fox, among others.

In fourteen years, I have had the pleasure of participating in each and every herpetological event held at the Academy. I am always delighted by the interaction between Herpetological Society "hosts" and museum visitors. Please extend my thanks to the participating members who shared their animals and engaged our visitors in meaningful conversation on the subject of reptiles. This dialogue—or shared museum experience—is something visitors have come to expect from the Academy.

It is also the type of environment we intend to create in our new facility, scheduled to open in the fall of 1998. As we move from our interim location to our new home in Lincoln Park, we are looking forward to maintaining our relationship with the Chicago Herpetological Society as an affiliated society of the Academy. In fact, we hope that you will consider using our expanded facility for your monthly meetings. We value the Society's support and will continue to place Academy resources at your disposal. . . .

Paul G. Heltne, Ph.D., President, Chicago Academy of Sciences, 2060 N. Clark Street, Chicago IL 60614.

Answers to the October Herp-Acrostic

The quotation in last month's Herp-Acrostic was taken from page 1 of *The Lizards of Fiji* by George R. Zug: "The closest relatives of the Fijian iguanas are in the Americas. . . . The relatives of the Lauan ground skink are in New Zealand. . . . How and when did these lizards colonize? This question and many more require answers about the relationships, geography and biology of the . . . Fijian lizards."

A. Gharial
B. Estuarine
C. Of Scientists
D. Rhea
E. Gaia
F. Eye of newt
G. Resin
H. Zootechny
I. Utah
J. Growth hormone
K. Toad the Wet Sprocket
L. Hellshire Hills
M. Entwined
N. Latin
O. Indiana Jones
P. Zdenek Vogel
Q. And Salamanders
R. Rhabdovirus
S. Daboia
T. Sungazer
U. Oarfish
V. Fairy tale
W. Fan-shaped
X. Iquitos
Y. Jemez
Z. Inquiline

Bull. Chicago Herp. Soc. 31(11):208-210, 1996

HerPET-POURRI

by Ellin Beltz

Stressed to kill?

Rudolph "Rudy" Komarek, a Pennsylvania rattlesnake hunter, was charged with "two separate incidents of capturing and possessing more than the state limit on rattlesnakes. The first charge was a result of a harvest card he had filed May 8, 1994, on which he reported that he had caught 12 timber rattlers out of season. The second incident stemmed from an appearance . . . on CNN's Network Earth. On June 10, 1995, Komarek took a CNN camera crew with him on the first day of rattlesnake season. The crew documented the capture of two timber rattlesnakes. The daily state limit is one snake. . . . Komarek believes that the charges were filed because of the jealousy of [wildlife] officers. 'They're mad because they weren't in my CNN thing.'" Komarek has been arrested seven times in Pennsylvania and has had trouble with New York wildlife officials as well. Komarek is quoted: "The reason they don't like me in New York is because certain people think I've taken too many rattlesnakes out of the state. I've taken over 9,000 snakes out of the state over the past 45 years. . . . The arresting officer's comment indicating I have a disregard for the laws protecting T. Rattlesnakes is quite factual. These laws are ridiculous and are designed to placate the wishes of the wealthy 'nature watcher' who occasionally may wish to take a guided nature walk, or may wish to read a magazine article concerning someone else's fantastic aesthetic experience." The article continues: "According to Komarek all that has been accomplished by revoking his license is that it will save him the $5 for the license, but he will continue to hunt rattlesnakes." [Shippensburg, PA *News-Chronicle*, August 22, 1996, from Bill Brown]

Disturbing trend

• A 13-foot long Burmese python apparently killed its 19-year-old New York owner outside his apartment in the Bronx. Police received a 911 call for a "man bleeding with a snake wrapped around him." Arriving at the building, police found the man face-down, half in and half out of his apartment. Officers heaved the snake into a bag and took it to the Bronx Zoo (New York Zoological Park) where it was identified. A reptile expert at the zoo said that pythons don't usually eat people. The man had apparently just bought a live chicken to feed the snake. His brother speculated that since the snake had only had rabbits before, it went wild when it smelled the chicken. The brothers had owned several other snakes, including other pythons, and had never had a problem before, said the surviving 16-year-old brother. [October 10, 1996, *Newsday* from Joseph Jannsen; *Chicago Tribune* from K. S. Mierzwa; October 11 *Post-Tribune*, from Chuck Keating; Little Rock *Arkansas Democratic-Gazette*, from Bill Burnett]

• A 15-foot python bit its 27-year-old female owner in the stomach while the woman was showing off her pet to friends in Huguenot, New York. Her mother-in-law put a kitchen spatula in the snake's mouth and pried it open. The woman went to the hospital and said, "I've had her [the snake] for six years. I got her when she was only 4 inches long." The woman said that she thinks her snake loves her too much to kill her. [Orange County, NY *Times-Herald-Record*, September 30, 1996, from Norman Frankel]

• San Diego, California, paramedics sawed the head off a 9-foot pet python which was coiled around the stomach of one of its owners. The woman woke up to find the Burmese wrapped around her and biting her buttocks. He husband tried to free her, but finally called paramedics. The snake had not been kept in a cage. The woman is 8-months pregnant and her 4- and 5-year old children witnessed the ordeal inside the single-room the family shares in a residential motel. Crisis counselors were called to help the children who were disturbed by the decapitation. [*Arkansas Democratic-Gazette* August 22, 1996, from Bill Burnett]

• Finally, in San Carlos Park, Florida, a couple was charged with child abuse after their pet python attacked their 2-month old baby. The snake had bitten the soft spot on the child's head and was wrapping itself around the baby when the child's mother and her boyfriend heard the child's cries and went to investigate. They pulled the snake off the baby and threw the snake in a closet and took the baby to the sheriff's office where an ambulance was summoned. The mother was charged with a probation violation and abuse by culpable negligence. The boyfriend was also charged with child abuse. The child was released from hospital to the custody of his grandmother. The snake was taken to Bill Haast's serpentarium, where Haast expressed the opinion that the snake had been trying to eat the baby, but that he was shocked by the attack. "I would never have expected that the snake would go after something as large as a baby, but perhaps it focused on the baby's head," he said. [Bonita Springs, FL *Banner*, October 9, 1996, from Ardis Allen]

Babies released

Biologists released Kemp's ridley hatchlings from eggs laid in two nests at the Padre Island national seashore in Texas in July. The turtles who laid the eggs may have been offspring from a headstarting program which began with the best of intentions and the support of conservationists and government biologists but which lost its funding in 1992 after some of the scientists involved with the program yanked their support when the shrimp fishing association began touting headstarting as a way to avoid using Turtle Excluder Devices (TEDs). In 18 years, the project cost the taxpayers $4 million dollars which various "wise-use" advocates claim was wasted. Time will tell, however, whether more Kemp's ridleys return to Padre Island where thousands of baby turtles were imprinted after hatching and before headstarting to release size. [*Science*, July 26, 1996, from Bill Burnett]

Declining amphibian writers

There seems to be an ongoing problem for herpetological editors trying to get material. The existing regular writers tend to have steady outlets for their work, and it seems as though less than one percent of the herp community even tries to write. I know our editor goes through this, but I was un-

aware of the lengths to which other publications will go in an effort to get new material. Recently, Jeff Beane, Editor of the North Carolina Herpetological Society Newsletter sent me a few sample issues of their publication. I really enjoyed reading them; there's a warped and twisted humor at work here. For example: "*NC Herps* prefers to print original articles, notes, cartoons, etc.... submitted to the editor in any reasonable format (handwritten, typed, diskette, crayon on construction paper, rudely scrawled in blood on birch bark, etc.)." Almost everything in their publication pertains to their state. If you'd like to receive their newsletter—or submit to their editor—please write North Carolina Herpetological Society, N.C. State Museum of Natural Sciences, P.O. Box 29555, Raleigh, NC 27626-0555 or electronically <nchs@RTPnet.intercenter.net> and <http://RTPnet.intercenter.net/~nchs>.

All your eggs in one book

A guide to identify amphibian species at early development stages with color photos taken in Oregon and Washington States, U.S. and British Columbia, Canada, was written by Charlotte Corkran and Chris Thoms of the Northwest Ecological Research Institute. Call (800) 661-9017 or fax (800) 424-7173 for more information. [Oregon Herpetological Society, from John Applegarth]

Frog news

• A white tree frog was found in Indiana by a writer for Hoosier Conservation [Indiana Wildlife Federation, September/October 1996]: "In July, while walking along the edge of the wildflower patch, I spotted what I thought was a white insect. On closer inspection I found it was a tiny, white tree frog, no larger than a bumblebee, clinging to the stem of a purple coneflower. Now I need to know if regular tree frogs come in white! Perhaps it was an albino. Or maybe fresh-from-tadpole tree frogs take a while to transform to less obvious greens and browns." [Contributed by Garrett Kazmierski]

• A tiny toad town has been built next to the newly opened tunnel for migrating amphibians in Davis, California. The postmaster recalled that tiny toads swarm every year in their parking lot, and sometimes in the post office itself and described how his father, a retired building contractor, built the town out of scraps from construction projects. "Toad Hollow" has a saloon called "Toad Werk," a cemetery named "Road Kill Hill," a toad-sized hotel, a swimming pool and even an outhouse. Other local residents are joining in, a foot-high green steel frog was installed by a nearby shop owner, and unwanted pet frogs are being released at the town as well. A city councilwoman campaigned with a frog and toad theme, the tunnel followed, and the toad is well on its way to becoming the town mascot. [Sacramento, CA *Bee*, from Laura Anne Welch]

• An interactive computer program is available which may replace regular frog dissection in many schools and colleges. View it at <http://www.sanluisobispo.com>.

• Cane toads are again in the news, although they haven't really done anything much lately that was newsworthy. Several papers rehashed the cane toad hallucinogen/aphrodisiac stories which made the rounds a couple of years ago. What apparently started this round of stories was a dog which nearly died after trying to eat one in Dade County, Florida. [September 21 and 22, 1996: San Luis Obispo County *Telegram-Tribune*, from Norman J. Scott, Jr.; West Chester, PA *Daily Local News*, from Mark T. Witwer; Leesburg, FL *Daily Commercial*, from Bill Burnett]

• A book titled *How to Turn Your Ex-boyfriend into a Toad and Other Spells for Love, Wealth, Beauty and Revenge* states that to do the toad spell, you need a piece of cloth from the ex's shirt, a handful of sandy dirt, a picture of the ex, a darning needle, a piece of thread and a green marker. You put the ingredients on the cloth, sew it up into a sack and use the marker to draw a toad on the sack. Then you leave it outside in the moonlight and throw it in the garbage the next morning. [*Chicago Tribune*, October 6, 1996, from Ray Boldt] Please let me know if you get this to work!

No acid reign?

The proposed Superior Mine which would have injected 11 billion gallons of sulfuric acid into a "played out" copper mine adjacent to Mineral River has been halted after huge public outcry by a coalition of Native Americans and environmental groups protesting the lack of an environmental impact statement and public hearings. At risk were both the groundwater and surface waters on the Keewenaw Peninsula, parts of Upper Michigan and Lake Superior near Isle Royale. [http://www.menominee.com/a-one/mccombs/action.html] My husband and I visited the Keewenaw in July last year—he promptly disappeared into a swamp to catch frogs—I sat on the shore looking at rocks. I was really pleased to hear that the whole rail corridor would not become acidified and that the old mine workings will still be open for exploration on our next trip. Perhaps the folks in Minnesota who are finding deformed frogs should look for one of these acid mines upgradient from their sites? Associated Press reports that scientists in that state recently held a conference to try to determine the causes of the horrible deformities being found in Minnesota, Wisconsin, South Dakota, Vermont states, U.S., and Quebec, Canada. Suggested causes include pesticides, parasites, ozone depletion, acid rain or a combination of these or other environmental insults. In Minnesota, deformed frogs have been reported from 54 of the state's 87 counties. [October 10, 1996: *Chicago Tribune*, from K. S. Mierzwa; *Post-Tribune*, from Chuck Keating] The Minnesota New Country School is maintaining a website on deformed frogs at <http://www.mncs.k12.mn.us/frog/frog.html> [from David Ian Withers, Tennessee Natural Heritage Biologist]

Are there TEDs on the 'net?

• Find out at <http://www.cccturtle.org>, the new home page of the Caribbean Conservation Corporation. You can also watch satellite-tracking of sea turtles in action and can "adopt" a tagged turtle. Contact <ccc@cccturtle.org> or call (800) 678-7853 for more information. [from Karen Furnweger, Shedd Aquarium]

• The Center for Marine Conservation's new website covers driftnets to purse seine nets and other issues <http:www.cmc-ocean.org>. [*Marine Conservation News*, Autumn 1996, from Kathy Bricker]

What? Where?
In a report in *USA Today*, a San Francisco, California, Chinese Chamber of Commerce spokesperson, Rose Pak, commented on the uproar about the sales of frogs, soft-shelled turtles and pheasants: "People don't understand that these are not pets. They've been raised to be eaten." [From Bill Burnett] So, where are the farms which raise frogs and soft-shelled turtles? I've been active in the herp community for ten years and don't believe that the amphibians and reptiles I've seen in Chinese food stores are anything but wild-caught. Pak said that if the city of San Francisco bans the sales of live foods the "essence of Chinatown will disintegrate." A merchant said, "This is the way food is meant to be: Fresh . . . maximum nutrients, maximum taste, maximum heath." To which we can add "maximum *Salmonella* bacteria" based on the conditions of live animals in Chicago Chinatown's food stores.

Lagerto, lagerto!

• A 3-foot gator has been reported from a tiny lake in the Presidio near the Golden Gate Bridge in San Francisco, California. Nobody has been able to catch it, including an imported Florida gator hunter flown in by the *Chronicle* for an all-expenses-paid gator-catching trip. Next the *San Francisco Examiner* drove out to the lake to try to save the gator from the *Chronicle*'s hunter. Protestors held signs reading "Welcome to Gator Lake. Home of Al, the vicious duckling-eating Gator," and "Al-1. Trapper Jim-0." [Orlando, FL *Sentinel* August 23, 1996, from Bill Burnett]

• An Australian government pamphlet for crocodile handlers warns: "Do not sit on the back of the crocodile . . . [and do not] place any part of one's body in the mouth of a crocodile." [*Chicago Sun-Times*, July 23, 1996, from Steve Ragsdale]

• A 7-year-old Brazilian tourist was cycling in the Everglades National Park when he fell off his bike and into a canal parallelling the bike trail. An alligator bit him; his parents jumped into the water and freed him. He and his mother were treated for puncture wounds at a local hospital. It was the first visitor-alligator accident since the park was created in 1947, according to the park superintendent. [Orlando *Sentinel*, July 15; Memphis, TN *Commercial Appeal*, July 23, both from Bill Burnett; *Times-Picayune*, July 17, from Ernie Liner; and Albuquerque, NM *Journal*, July 17, 1996, from J. N. Stuart]

Your traffic hot-spot this fall
Officials at the Shawnee National Forest closed roads in the Larue-Pine Hills region of the Forest to vehicular traffic to protect snakes crossing roads from swamps to areas where they overwinter. The roads were closed when it was discovered that motorists were deliberately trying to run over snakes and will be closed again in spring for the reverse migration. The park is home to timber rattlesnakes, copperheads, and cottonmouths as well as a suite of non-venomous species. [*Chicago Sun-Times*, October 16, 1996]

Chilling experience
Workers delivering a new refrigerator were surprised by a 3-foot snake which they found unexpectedly in the back of their delivery van. The store manager said, "It was embarrassing when the [female] pet store owner picked it up and petted it like a little kitten, after it had scared our delivery men." She identified it as a red-tail Colombian boa constrictor and installed it in a tank at her store while trying to find the owner. [Portage, IN *Post-Tribune*, August 7, 1996, from Jack Schoenfelder]

CHS Members' News

• Ardis Allen of Bonita Springs, Florida, has been fighting to try to keep her pet gators which she had brought with her from Idaho when she moved to Florida. The fight is now over, and the gators have been moved to Octagon Wildlife Sanctuary in Charlotte County, Florida. Ardis said that she's going to miss having them around, but that she couldn't afford to fight city hall any more. [Fort Myers, FL *News Press*, July 19, 1996]

• Tom Anton is working as a wildlife biologist for the Forest Preserve District of Cook County, doing a herp survey for Cook County funded by the U.S. Forest Service. [Chicago *Reader*, August 30, 1996, from Ray Boldt]

• Rick Dowling of Prattville, Alabama, completed a degree in wildlife biology and is working for *The Prattville Progress* newspaper taking photos and rescuing snakes. Recently, he took a 4-foot gray rat snake out of a toilet in a mobile home. [September 7, 1996]

• Jim Nesci on WJJG-AM 1530: "You never want to associate your hand with food" when dealing with your pet reptiles! [from Steve Ragsdale]

• Bill Montgomery reports from Texas: "The outcome of the Barton Springs salamander issue was that Bruce Babbitt denied it endangered species status."

Thanks to everybody who contributed and to: Bill Burnett, J. N. Stuart, Ray Boldt, P. L. Beltz, Steve Ragsdale, Chuck Keating, Mark T. Witwer, and Maggie Jones. To contribute, send whole pages of newspaper or clippings with date/publication slug firmly attached, and your name to:
Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614.

Herpetology 1996

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editors assume full responsibility for any errors or misleading statements.

EMBRYONIC DIAPAUSE IN STRIPED MUD TURTLES

M. A. Ewert and D. S. Wilson [1996, Chelonian Cons. and Biol. 2(1):43-54] note that embryonic diapause in turtles is a state of developmental arrest in which early embryos cease developing under otherwise favorable environmental conditions and await an additional environmental factor, particularly prolonged exposure to cool temperatures, that will terminate diapause and allow resumption of development. The authors determined that expression of diapause in *Kinosternon baurii* varied with nesting season and incubation temperature. Significantly fewer embryos expressed diapause in spring than in fall and fewer at warm temperatures than at moderately cool ones. Because the same individual females were gravid and visiting their field nesting area in the spring and in the fall, females probably do not vary phenotypically in the incidence of diapause expressed by their embryos. The authors postulate that every embryo is potentially capable of expressing diapause, depending on the season of oviposition. Embryos with development artificially activated during the fall did not die while overwintering in natural nesting habitat, but possibly, these embryos are less fit than those on a natural schedule that develop during the spring and summer. Embryonic diapause, when present, can engender problems for conservationists commencing controlled incubation programs. Current protocols for incubating turtle eggs may not incorporate a need to chill early embryos to terminate diapause. Most species of turtles that express diapause occupy warm temperate to peripherally tropical habitats, nest well into periods of declining day length, and lay eggs with brittle shells. The authors suggest that these characteristics may be used to identify species potentially needing special protocols for incubation. Alternatively, for embryos that may have diapause, it may be safest to initiate incubation at cool temperatures rather than at warm ones.

A NEW PERUVIAN MICROTEIID

T. W. Reeder [1996, Herpetologica 52(2):282-289] notes that the occurrence of a previously undescribed species of the microteiid lizard genus *Pholidobolus* in the Huancabamba Depression represents the second species of the genus from Peru. The description of this species (*Pholidobolus huancabambae*) further increases the level of endemism of the Huancabamba Depression herpetofauna. The new species and *P. annectens* (and possibly *P. anomalus*) are proposed to represent a clade based on two synapomorphies—possession of a single transparent palpebral disc and absence of a lateral fold. The status of the poorly known *P. anomalus* is addressed. In addition, a single specimen of *P. montium* is reported from Colombia. This specimen seems to represent the first record of *Pholidobolus* from Colombia, although *P. montium* long has been suspected to occur in extreme southern Colombia. A key is provided to the seven currently recognized species of *Pholidobolus*.

REPRODUCTIVE OUTPUT IN FEMALE WATER PYTHONS

T. Madsen and R. Shine [1996, Herpetologica 52(2):146-159] captured female water pythons, *Liasis fuscus*, from a population in tropical Australia shortly before oviposition and incubated their eggs. They obtained data on 1605 eggs and 1285 hatchlings from 111 females to evaluate factors influencing reproductive output. Most reproductive traits varied only slightly between the two years of the study. Successive clutches by the same female were consistent in mean egg and offspring sizes, hatching success and oviposition date. Whether or not an adult-size female python reproduced in a given year was a function of her body size and her condition. The proportion of reproductive animals was highest at intermediate body sizes, apparently because the largest females could not gather enough energy for reproduction as well as maintenance costs. Clutch sizes and egg sizes were directly affected by maternal body length and maternal condition, but these effects were obscured by a strong indirect effect: a tradeoff between egg size and clutch size. Date of hatching depended primarily on date of oviposition (which in turn differed among subpopulations within the study area, apparently due to thermal factors), but incubation periods also differed between years. Maternal body condition after oviposition was influenced by pre-oviposition condition and relative clutch mass. Path analysis revealed a series of strong effects, both direct and indirect, in the relationships among reproductive variables.

DIETS OF TWO AUSTRALIAN TURTLES

R. Kennett and O. Tory [1996, Copeia (2):409-419] studied the diets of two freshwater chelid turtles, *Chelodina rugosa* and *Elseya dentata*, from the wet–dry tropics of northern Australia. *Chelodina rugosa* occupies seasonally ephemeral waterholes on the coastal freshwater floodplains of northern Australia. It is an obligate carnivore and feeds primarily on fish, fast-moving aquatic invertebrates, and carrion. Differences between wet-season and dry-season diets, notably an increase in fish consumption and a decrease in consumption of odonate nymphs, reflect changes in abundance or accessibility of prey items. *Elseya dentata* occupies permanent water riverine habitats and is primarily herbivorous. The bulk of its diet consists of fruit and leaves of riparian rainforest trees, and seasonal changes in fruit species consumed reflected fruiting patterns. Filamentous algae comprised 30% by mass of the dry-season diet but were absent from the river during wet-season flooding and hence were absent from the diet. *Elseya dentata* readily feed on meat and fish carrion when available, but animal prey such as shrimp (*Macrobrachium* sp.) and freshwater sponge formed only a small proportion of their diet. Because *E. dentata* relies on riparian trees for most of its dietary intake, it is extremely vulnerable to land management practices that have adverse impacts on riparian forests.

Unofficial Minutes of the CHS Board Meeting, October 11, 1996

The meeting was called to order at 8:11 P.M. Board members Jenny Picciola, Jack Schoenfelder and Audrey Vanderlinden were absent.

Officers' Reports

The minutes of the September board meeting were unavailable. The Treasurer's Report was reviewed and accepted. No membership report was available.

Committee Reports

Library: The board congratulates CHS librarian Jenny Picciola on the birth of a healthy baby girl, Jenna Diane. Renee Gralewski is running the library until Jenny returns.

Shows: Both HerPETological Weekend, September 21-22, and the show at the Shedd Aquarium, September 28-29, went very well. Gary Kostka thanks everyone who participated in the Shedd show. Lori King-Nava thanked Gary Kostka for coordinating the Shedd show. The CHS will again take a booth at the annual Arlington Pet Show, to be held in March 1997. The fee has already been paid.

Nominating Committee: Jon Ihrig sent word that he is unable to continue as chair of the Nominating Committee. No new chair was appointed.

Book sales: Jenny Vollman has agreed to sell CHS books at the Midwest Herpetological Symposium in St. Louis, and at general meetings.

Reptile-fest: Lori King-Nava has already begun holding meetings to plan the 1997 CHS live animal show, to be called a "Reptile-fest." The Clarion Hotel ballroom has been tentatively booked for the Memorial Day weekend, May 24-25, 1997. Lori distributed a planning report she had prepared, containing many great ideas about publicity, animal commitment and other facets of the show.

Workshops: Nicole Marrello will be moving to Carbondale, Illinois, at the end of the calendar year. A new volunteer must be found to plan and arrange workshops.

Awards: Art Nohlberg reports that the Awards Committee is on schedule; award plaques will be ready for presentation at the November general meeting.

New Business

Tonya Maris expressed a strong interest in chairing the Adoptions Committee in 1997.

Gary Fogel moved and Jenny Vollman seconded that the CHS present to Joan Moore a gift of $1000 worth of books (at members' prices) in recognition for all her hard work done over many years. The motion passed, with John Driscoll abstaining.

Round Table

Chris Lechowicz expressed thanks to everyone who helped earlier in the day with moving the CHS merchandise inventory from Joan Moore's attic.

Chris Lechowicz expressed the board's appreciation to Jill Horwich for hosting this month's board meeting.

The meeting was adjourned at 9:22 P.M.

Respectfully submitted for the Recording Secretary by Jill Horwich

CHICAGO HERPETOLOGICAL SOCIETY LIBRARY

THE LIBRARY CART WILL BE ACCESSIBLE TO ALL MEMBERS AT EACH MEETING.

MEMBERS MUST SHOW THEIR CHS CARD TO CHECK OUT BOOKS (LIMIT 3).

ALL BOOKS ARE DUE BACK AT THE NEXT MEETING. BOOKS MAY BE RENEWED BY PHONE OR IN PERSON. BOOKS RETURNED LATE WILL INCUR A FEE OF $2 PER MONTH.

TO RENEW BOOKS BY PHONE, CALL JENNIE PICCIOLA AT (708) 418-0729.

The International Herpetological Symposium Annual Meeting

¡VIVA COSTA RICA!

FOCUS: NEOTROPICAL NATURAL HISTORY AND CONSERVATION

Keynote Speaker: Daniel Janzen, Ph.D.; Banquet Speaker: Michael Fogden, Internationally renowned Wildlife Photographer

Preliminary List of Speakers:
Harry W. Greene, PhD
David L. Hardy, MD
Alejandro Solorzano
J. Alan Pounds, PhD
William R. Branch, PhD
Karl Petersen
William W. Lamar
Norman J. Scott, PhD
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Registration: $235.00 (spouse registration $200.00) and includes:
- Paper Sessions
- Program & Abstracts
- Round Trip Transportation between San Jose and Liberia
- 8 Buffet-Style Meals
- Barbecue at Santa Rosa National Park
- Banquet Dinner
- Other Festivities

Rooms (Hotel Boyeros): $50.00/day (for up to 4 people)

Travel Arrangements:
American Travel Services has guaranteed the lowest possible rates on travel to the 1997 meeting, departing from various gateways across the U.S. and allowing flexibility in travel iteneraries. For more information please contact Adam at: American Travel Services, Inc., 800 Brazos, Suite 210, Austin, TX 78701. Telephone: 1-(888) 477-5444 (toll free), (512) 477-2130 (fax). Be sure to mention IHS.

For registration please contact:
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For additional information:
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P.O. Box 1957
Sandy, UT 84091-1957
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JULY 10-12, 1997

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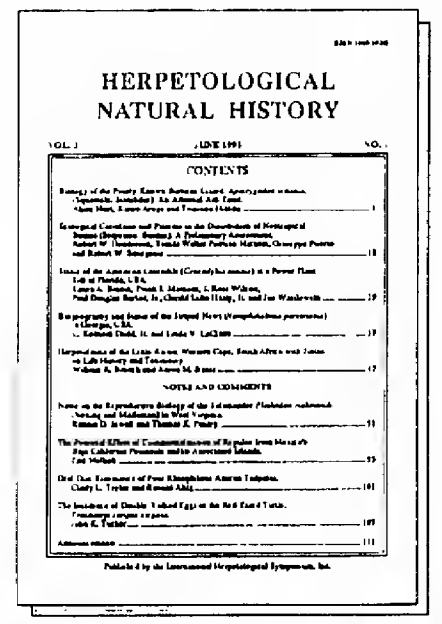


Herpetological Natural History **is a refereed journal published semiannually by the International Herpetological Symposium, Inc. Most articles are written by prominent herpetological authors, and present results or observations concerning the natural history of amphibians and reptiles; they feature topics in ecology, behavior, evolution and systematics, biogeography, paleontology, conservation biology, life history, and regional surveys. Herpetofaunal surveys and studies of species from poorly known regions or regions in danger of human exploitation are particularly featured. Such important contributions often do not make their way into the more data rich, hypotheses driven herpetological journals, and a primary objective of *HNH* is to disseminate such information.**

Subscription to *Herpetological Natural History* is $25.00/yr. for individuals and $50.00/yr. for institutions. International subscriptions are mailed by surface and require an additional $7.00 for postage. Air mail quotes are provided upon request. Back issues (Vol. 1 No. 1 & 2) are available for $34.00/set (postpaid); all other back issues are available for $17.00 ea. (postpaid).

Advances in Herpetoculture **is the first in a series of special publications of specific topics in herpetology. Edited by Peter D. Strimple, this publication contains a foreword by David Chiszar and 25 articles on the husbandry, captive propagation, veterinary medicine, and conservation of amphibians and reptiles. The book has *xiii* + 167 pp., and is generously illustrated with 42 black & white photographs and 30 tables and figures. Cost is $34.95 + $2.00 shipping& handling (foreign orders: $3.00 surface, $10.00 air mail).**

Payment for IHS publications (in U.S. dollars) must be made to International Herpetological Symposium, Inc. VISA & MasterCard are accepted.

ORDER FROM: Allen E. Anderson, Publications Secretary, P.O. Box 176, Norwalk, Iowa 50211 USA

Advertisements

American Federation of Herpetoculturists: A nonprofit national membership organization of herpetoculturists, veterinarians, academicians and zoo personnel involved in the captive husbandry and propagation of amphibians and reptiles. Membership includes highly acclaimed magazine, *The Vivarium*, dedicated to dissemination of information on herpetocultural accomplishments, herp medicine, breeding and maintenance, field studies and adventures, enclosure design and much more. AFH membership is $26. Send information requests to: AFH-News, P.O. Box 300067, Escondido CA 92030-0067.

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (904) 495-9024.

For sale: murine-pathogen-free rats and mice available in all sizes, live or frozen: pinkies, fuzzies, crawlers, small, medium and large. Frozen crawler mice in lots of 2000, $.17 each. Also available, full grown hairless mice. FOB shipping point. Master Card accepted. Call (518) 537-2000 between 8:00 A.M. and 5:00 P.M. or write SAS Corporation, 273 Hover Avenue, Germantown NY 12526 for prices and additional information.

For sale: high quality feeder mice. Shipped UPS Next Day Air. All mice are properly processed to insure a quality product. Fourth year of production and supply of frozen feeder mice. Prices: pinks, $25/100; fuzzies, $30/100; weanlings, $35/100. Also available are 4 oz.+ rats, $100/100. Quantity discounts available. The Mouse Factory, P.O. Box 85, Alpine TX 79831, (915) 837-7100, Ray Queen.

For sale: from Bayou Rodents, excellent quality feeder mice and rats. Every size available. Pinks starting at $20/100. Orders are shipped by overnight service Monday thru Thursday. We accept Visa, MasterCard and Discover. For more info, contact Rhonda or Peggy, (800) 722-6102.

For sale: **Finest quality frozen rats**. Pinks, $.60; small, $.85; medium, $1.10; large, $1.35; jumbo, $1.65. Frozen mice are also available in medium and large at $.50–.65. Milwaukee pickup or possible delivery to Chicago area for large quantities. Pat Kube, (414) 383-7036.

For sale: In stock, Flex-watt and Ultra-therm heating products. **Frozen rodents** always available. Mice: pinks–crawlers, 3/$1; weanlings, 40¢; subadult, 50¢; adults, 65¢; large adults, 75¢. Rats: small, 85¢–$1; medium, $1.25–2.00; large, $2.25–2.75; jumbo, 3/$10. Call on quantity discounts [note: discount on orders picked up at CHS meetings]. Live rodents available at higher prices. **Available now**: newsletter/catalog—many unique/hard-to-find herp husbandry items. Send business-size SASE for catalog, or call. Scott J. Michaels, D.V.M, Serpent City, P.O. Box 657, Island Lake IL 60042, (815) 363-0290.

For sale: **Gila monster T-shirt**. SSAR Silver Anniversary poster of David Dennis' Gila monster watercolor in full color on 100% pre-shrunk cotton T-shirt. Shirts come in white or pink, adult sizes S–XL ($16), XXL ($19). Add $2 s&h 1st shirt, $1 s&h each additional shirt. Send check or money order to E.C.O., 325 W. Oakland Avenue, Lansing MI 48906. (Donation to SSAR included in price of each shirt).

For Sale: **Reptile D-lights.** Our 8% is the first and only fluorescent light bulb that duplicates the UV-B output of the sun while having an excellent color rendition (CRI 91). Let your reptile make *exactly* the right amount of vitamin D. Stop under- or overdosing with all those powders. A must-have for iguanas, uromastyx, bearded dragons and all diurnal basking lizards. Get yours now! Available in 18", 24", 36", 48". $34.95 each plus shipping. In California please add 7.75% sales tax. Dealer inquiries invited. Scott Solar (909) 627-3274; 9 – 9 Pacific Time or; Reptek@aol.com anytime. For Animal Use Only.

For sale: reptile cage disinfectant and deodorant. Kills many types of infectious disease detrimental to herps. $3.91 for 2 oz (makes 1 gallon). Wholesale and quantity prices available. Make checks payable to Bengal Pets, Inc., 1088 Chapman Road, Jesup GA 31545, (912) 530-6384.

For sale: one 40-shoebox unit, one 30-sweaterbox unit. Both units come with shoe- or sweaterboxes, rollers, complete heat system, storage space, and temperature gauges. These units are Amish-built with quality to last for a lifetime. $1000 firm for both units. Mike Wood, 1025 Shady Lane, Warsaw IN 46580, (219) 269-7664.

For sale: GLASS TANK, custom made, 5' × 2' × 2', not made to hold water but would be an excellent cage for reptiles that need room, comes with 4' shop light fixture, two heat lamps, and a sturdy table stand, $125, must pick up, call Rob Carmichael, (847) 615-4388 (leave message on voice mail) or e-mail <crzy4natur@aol.com>

For sale: **redfoot tortoises**, c.b. yearlings, $175, 2-year-olds, one male and one female, $400/pair; c.b. Sinaloan milksnakes, feeding, $100/pair, $55 each. Marc, (708) 597-6172.

For sale: one shingleback skink, $1800; one pair of subadult frilled dragons, $750/pair. Mike Wood, 1025 Shady Lane, Warsaw IN 46580, (219) 269-7664.

For sale: VEILED CHAMELEONS, hatchlings, beautiful and hardy, $35 each, quantity discounts available, Rob Carmichael (847) 615-4388 (leave message on voice mail) or e-mail at <crzy4natur@aol.com>

For sale: Beautiful, captive-born babies. Bearded dragons, many unique color morphs, $35–125; veiled chameleons, $35–60; panther chameleons, $60–75; leopard geckos, $20–30; northern bluetongue skinks, call for price. Also expecting frilled lizard babies. Call for prices as well as other available herps. Conveniently located in Chicagoland area. We ship nationwide. **Midwest Reptile Farm**, (708) 539-7025.

For sale: captive-bred Dumeril's monitors, *Varanus dumerilii*, $330 (10% discount to herp society members, $297). Unrelated bloodlines hatched January '96 and May '96. Mike, (770) 987-3933. [GA]

For sale: Our 1996 babies. **Northern blue-tongue skinks**, 3 months old, growing like weeds, very colorful, $75 each; **black, albino and northern pine snakes**, $40–80; **Colombian boa constrictors**, very nice with lots of pink, $75 each; **Kenyan sand boas**, feeding well, lots of orange, $50 each; **Baja rosy boas**, healthy, feeding, pretty, $100 each; **bearded dragons**, 2–4 months old, large, very healthy, $50 each. Located between Milwaukee and Chicago. For more information call (414) 654-6303 and ask for Kirsten or Jim.

For sale: captive-bred reptiles. Veiled chameleons, $25; leopard geckos, $15; Australian bearded dragons, $30; red/gold bearded dragons, $50; red-eyed treefrogs, $18; emerald basilisks, $30; albino Burmese pythons, $90; African rock pythons, $45; Borneo blood pythons, $75; 6' Malaysian blood python, $375; 6' Dumeril's boa, $375; corn snakes, $10; albino corn snakes, $20; snow corns, $25; albino California kingsnakes, $30; Sinaloan milksnakes, $55; spur-thigh tortoises, $75. Too much to list—absolutely the best quality at the best prices. Visa/MasterCard/Discover/Amex accepted. These are wholesale prices. Buy—sell—trade. Call anytime for free pricelist—open 7 days a week. Herp hobby shop—reptile breeding center. Oldsmar FL, (813) 789-5336.

For sale: captive-bred snakes, lizards, tortoises and amphibians. Prospective births and hatchlings include: leopard geckos; carpet chameleons; Jackson's chameleons; African spurred tortoises; rat snakes; milksnakes; kingsnakes; western hognose snakes (permit needed in Illinois); northern and black pines; Colombian boas; Brazilian rainbow boas and Macklot's pythons. Send SASE for current list or call (903) 693-3379. R. L. Ball, Rt. 1 Box 170, Carthage TX 75633.

For sale: tricolors, albinos and a few secret projects. Send SASE for free price list. Robert Applegate, P.O. Box 338, Campo CA 91906, (619) 478-5123. Also, free husbandry consultation by phone, as a service to the herp community.

Advertisements (cont'd)

For sale: **from Gaines Reptiles, Inc.** I am now offering two pairs of **South American tricolor hognose (first captive-bred offspring offered in the U.S.)** at $4000/pair. Also, accepting $1000 deposits on 1997 offspring. Another surprise is that I am now offering **albino, heterozygous, and possible heterozygous boa constrictors**, c.b. in September. Other currently available inventory includes one male and one female c.b. '94 Dumeril's boas, $1200/pair; one male and one female c.b. '93 northern blue-tongue skinks, $600/pair; two male and six female c.h. '96 Tarahumara mountain kingsnakes, $350–450 each; two male and four female c.b. '95 rough-scaled sand boas, $350/trio; one male c.h. '95 Ruthven's kingsnake. Bill Gaines, (317) 878-4042 or (800) 689-3040 (voice). [Trafalgar IN]

For sale: Everglades rats, 8/96, $20; white oak rats, 7/96, $25; Okeetee corns, $25; trinket rats, $65; Central American rats (*Elaphe flavirufa*), 8/96, $150; Florida kings, 6/96, $20; Cal. kings, 7/96, $25; coastal carpet pythons, 7/96, $125; lemon-yellow bearded dragons, $40 & up; Sandfire × red bearded dragons, $75 & up; frilled dragons, 10/96, $500. HISS & THINGS, INC, Jim Kavney, (305) 664-2881. [FL]

For sale: breeding group of **corn snakes**—one male and one female snow, one male and one female amelanistic, one female ghost, one female anerythristic, one normal female (has creamsicle babies), 116 eggs in '96, $650/offer. Also one male and three female leopard geckos, breeding group, $240. Call Chad after 5 P. M., (414) 782-4290. [WI]

For sale: Brazilian boas, *Boa constrictor amarali*, (holotype from São Paulo, Brazil), from very light female F_3, born 9/96 (8 males, 11 females), $400 each. Rolf Mikkelsen, Valhoejsalle 83.7.th, DK - 2610 Roedovre, Denmark, phone +45 36414783, fax +45 31212087.

For sale: **Argentine boa constrictors** (*Boa constrictor occidentalis*), c.b. babies from *completely unrepresented* founder stock, $350–400; Peruvian boa constrictors (*B. c. ortoni*), c.b. babies, $250–325; central Brazilian boa constrictors (*B. c.* ssp.), c.b. babies, $550; Colombian rainbow boas (*Epicrates cenchria maurus*), c.b. yearlings, $125–145. The above are progeny from captive breedings of unreated, legally obtained, wild caught founders at our facilities. Purchasers are encouraged to participate in an informal studbook program. Terry Cullen, (414) 645-7347 phone, or (414) 744-7981 fax. [WI]

For sale: three male and three female well started jungle carpets (photos available), all feeding on fuzzy mice, jet-black with wide lemon-yellow bands, $750/pair; three male and two female Children's pythons, born in May, lots of size already, nice light color with faint markings, $300/pair; four male and four female Brazilian rainbows, some light colored, some are darker, your choice, great size on all, $350/pair; green tree pythons, all well started, high yellow parents (Zulich/Bessette), $650 each; Dumeril's boas, very high pink and orange coloring, these animals speak for themselves, $375 each or $700/pair. Many more great projects available soon! Eric Crider, (360) 380-5811 phone or (360) 384-1457 fax. [WA]

For sale: three-year-old male Colombian boa, *B. c. constrictor*, very healthy, good home only, $120. Ask for Paul, (708) 331-4561

For sale: one male and one female jungle carpet yearlings, Sipperly and Barker stock, nice, $800 o.b.o.; one male and one female Cal. kings, 2 years old, perfect, $150; one 6-month-old male snow corn, $45; one female Surinam emerald tree boa, beautiful and incredibly tame, 2½ years old, $750. Serious inquiries. Bob, (630) 307-0879.

For sale: **annulated boas**, *Corallus annulatus*, 1996 captive-bred neonates available from legal wild-caught parents, unrelated to any other bloodlines, red and black phases are available. A great addition to a rare and unique collection or a great ground-level investment opportunity. Serious inquiries only. Also available from superior quality stock: green tree pythons from all localities, our favorites and specialty; emeralds; Amazon tree boas; jungle carpets (outrageous); bloods and many other boids. All price list requests require a SASE. CHONDRO, INC., P.O. Box 16192, Ft. Worth TX 76162, (817) 293-2451.

For sale: c.b.'96 babies—22 green tree pythons from two unrelated clutches, $550 each or two for $1000; 16 male and 38 female Solomon Island ground boas (*paulsoni*), father is Isabel Island phase (light), anole feeders, $25 each, quantity discounts; six male and three female Borneo short-tail pythons, $200/pair; one male and three female Queensland carpet pythons, $225/pair; five Amazon tree boas, yellows, oranges, $150 each. Jerry Conway, 7154 N. University Drive, #102, Tamarac FL 33321, (954) 722-8758.

For sale: **Chondros, chondros, chondros!** 1996 is the year of the chondro! Eugene and Trooper are ready to send your own personal choice green tree python from the world's largest and most genetically diversified collection of green tree pythons, second to none. Do not miss this opportunity to experience the privilege of raising your own c.b.b. baby chondro. All babies will have shed two or more times, guaranteed feeding on their own. Data cards, genealogy charts and scientific reprints, all you need to ensure your many years of joy with the finest chondros in the world, $675 each. Also available, 1- to 2-year-old breeder selects from numerous existing genetic colonies. Invest in the very best! Other pythons, boas and colubrids available. Call for more info, Ophiological Services, (352) 495-3075 or fax (352) 495-2952. [Archer FL]

For sale: **Madagascan ground boas**, c.b. 11/95, call; **Surinam red-tail boas**, c.b. 8/96, "classic" beauties, $300–350; Australian water pythons, c.b. 5/96, bright yellow bellies, $175; Malaysian blood pythons, $250 each; Argentine boa constrictors, $250 each; locality gray-banded kingsnakes, $125–160; Mexican milksnakes, $50; Pueblan milksnakes, apricot & tricolor, $65–100; Honduran milksnakes, anerythristic and possible heteros, $150–800; albino Sonoran gophers, $50; California kingsnakes, $30–40. Call or fax Russ Walker, (409) 594-5554. [TX]

For sale: one pair of Queensland carpet pythons, 4–5 years old, female 6', male 5', $650/pair or trade for Brazilian rainbow boas. (630) 896-1703.

For sale: captive-bred snakes. Blood pythons, Burmese pythons, Kenyan sand boas, black rat snakes, bull snakes. Will deliver in Chicago metro area or ship from O'Hare Airport. Joan Moore, (312) 528-4631.

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 471-0240. E-mail <fpglwmau@anv.net>.

For sale or trade: 70 hatchling African spur-thighed tortoises (*sulcata*), $75 each. Will trade for the following: male and female Libyan Greek tortoises that were imported last year; also Chaco, marginated, Herrmann's, stars, radiateds, leopards, Galapagos. I have paperwork. Also will trade for jeweled lacertas (*lepidus*). Bob, (602) 919-2872 mobile, or (520) 868-4659 home. [Florence AZ]

Free to good home: female Colombian boa. Bob, (630) 307-0879.

Pet-sitting service: Complete in-home pet and plant care, specializing in reptiles and other unique pets. Dogs and cats welcome with open arms, midday dog walking. Experienced and dependable service by devoted animal lovers, serving Chicago and suburbs, reasonable prices, fully insured and bonded. Ask about our habitat consultation and custom-made cages. Exotics & More, (312) 728-5457 or page us at (708) 750-3688.

Repto-rama: Live educational presentation of local herps and herps of the eastern U.S. for parties, scout groups, nature centers etc. Dave, (847) 679-1530.

Software: **TRACS**™ record keeping and breeding software for IBM and compatibles. TRACS™ Professional, a full system, $129; TRACS™ *Lite*, for the hobbyist, just $39.95. Add $5 s&h, $10 outside U.S. Send for a working demo for $10 (cost may be applied toward purchase). Or download demo free via Internet at <http://www.herp.com/tracs/>. Send check or money order to Leapin' Lizards, 23852 Pacific Coast Highway, #375, Malibu CA 90265.

Advertisements (cont'd)

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Much more fun than shoveling snow November–February. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-MAIL: <blove@cyberstreet.com>.

Tours: **Road-riding in Costa Rica!** Treat yourself to the trip of a lifetime! Learn about tropical herps, find them, photograph them, see where they live. **Greentracks, Inc.**, offers the best herpetological tours led by internationally acclaimed herpetologists and herpetoculturists. See the Amazon, visit cloud forests, experience the world's greatest rainforest, super sunsets and good company. Call (800) 9-MONKEY.

Video: *Rattlesnake Hunting*, a 60-minute video by a 30-year veteran collector. Don't miss this one! It's as close to being in the field as you can get. (Not a slick commercial production.) Send check or money order for $19.95 plus $3 postage & handling to: D. Wheeler, 2705 Sunset Trail, Riverwoods IL 60015. Allow 4–6 weeks for delivery.

Wanted: Greek tortoise for breeding project. Leo, (773) 376-0826.

Wanted: Price lists from snake and lizard breeders. Rolf Mikkelsen, Valhoejsalle 83.7.th, DK - 2610 Roedovre, Denmark, phone +45 36414783, fax +45 31212087.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Wanted: I am desperately in search of the following herp books: 1.) *Herpetology* by Kenneth R. Porter, published by W. B. Saunders in 1972; 2.) *Laboratory Anatomy of the Iguana* by J. C. Oldham and H. M. Smith, published by Wm. C. Brown in 1975. If you have any of these books or can be of any help in my search for them, please contact Jody Hibma, 3300 E. Deerfield, H-245, Mt. Pleasant MI 48858, (517) 774-3895 days, or (517) 772-7125 evenings; E-mail <jody.c.hibma@cmich.edu>

Wanted: outstanding captive-bred or wild caught *Lampropeltis getula floridana* (*brooksi*), locality data preferred but not required; all subspecies of *L. zonata*; and *L. triangulum multistriata*, *L. t. syspila* and *L. t. gentilis* with exact locality data. Kirk Setser, 414 Wickham Road, Manhattan KS 66502.

Wanted: Looking for investors interested in opening a reptile museum/pet store/shelter dedicated to educating the general public, performing educational programs and finding good homes for unwanted animals. Please contact Dave Golde with any information on potential investors or government funding, (847) 679-1530.

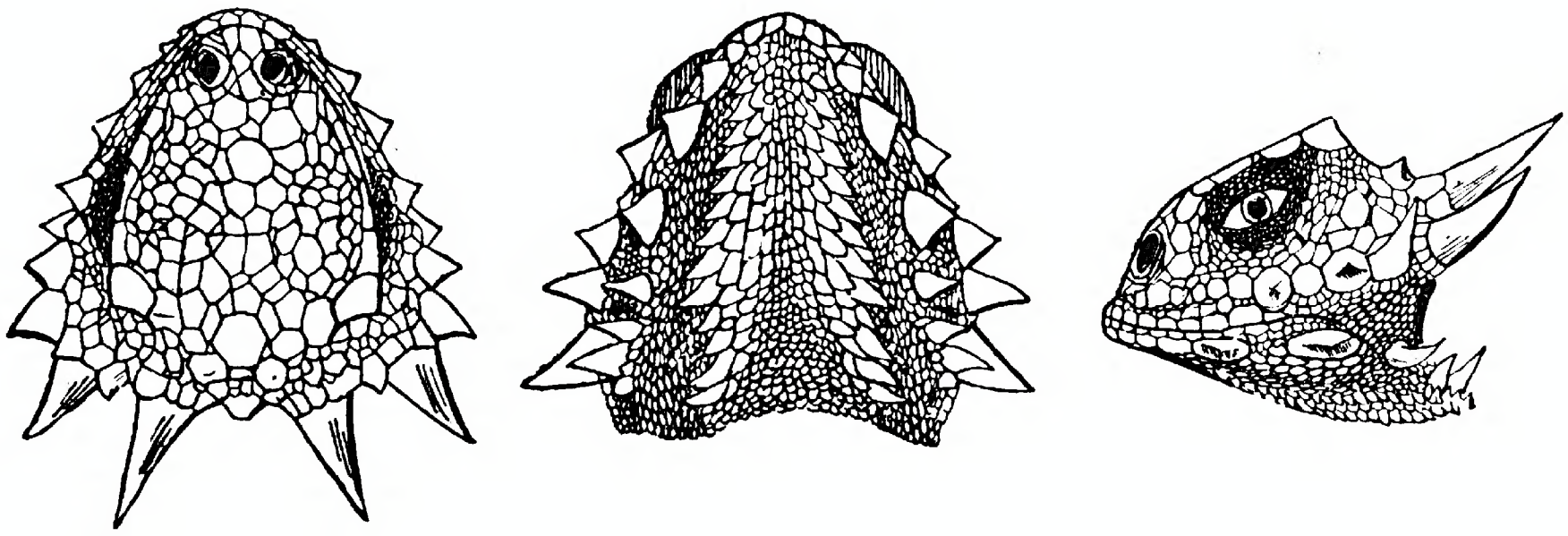
Wanted: Styrofoam boxes, any size or shape so long as they're not flimsy, preferably with cardboard liners, willing to pay from $2 to $5. Bring to CHS meetings. Scott J. Michaels, D.V.M, Serpent City, (815) 363-0290.

Line ads in this publication are run free for CHS members — $2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (312) 588-0728 evening telephone, (312) 782-2868 fax, E-mail <MADadder0@aol.com>.

News and Announcements

NEW BOOK NOW AVAILABLE FROM RAY HOSER

Smuggled–2: Wildlife Trafficking, Crime and Corruption by Raymond Hoser has now been released. The book is an all-new sequel to Hoser's earlier *Smuggled—The Underground Trade in Australian Wildlife*. *Smuggled–2* offers continuing coverage of the illegal wildlife trade and bureaucratic corruption in Australia, and also covers similar activities in the United States. Numerous excerpts from the new book have appeared in the *Bulletin* over the past two years. The book can be ordered directly from Australia for $24.95 postpaid. Check or money order should be made payable to KOTABI Pty Ltd. The order should be sent to: P.O. Box 599, Doncaster, Victoria, 3108, Australia. For more information on this and Hoser's earlier books or to place an order through the Internet, see the "Australians against Corruption" website: <http://www.kew.starway.net.au/~adder/>.



UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, November 27, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. The annual election of officers and members-at-large of the CHS Board of Directors will take place at this meeting. During the intervals while ballots are being tallied, members are invited to show their 35 mm slides. The slides should be herp-related and each member's presentation must last no longer than 10 minutes. Those who are interested in showing slides are asked to arrive early so that their slides can be placed into trays. **Also at the November meeting:** In addition to the usual wide selection of books, we will be offering for sale a variety of other herp-related merchandise such as mugs, jewelry, games and puzzles. So come prepared to find the perfect present for a hard-to-shop-for herpetologically-inclined friend or relative.

Because the last Wednesday in December this year falls on Christmas Day, the December CHS meeting has been scheduled for Wednesday evening, December 18 — same time, same place. The program is one that you won't want to miss. CHS Treasurer **Gary Fogel** will speak on the husbandry and breeding of South African lizards of the genus *Cordylus*. Those of you who saw Gary's presentation at last year's Midwest Herpetological Symposium will have an idea what to expect. For the rest of you — suffice it to say that the program is both highly informative and highly entertaining. Mark your calendar now to make sure you don't forget. **Your December *Bulletin* probably will not arrive early enough in the month to remind you.**

We are required to use the entrance on the west side of the museum. We have permission to use the staff parking lot to the west of the museum. Entrance to this lot is from McFetridge Drive, the wide street just to the south, between the museum and Soldier Field. **Due to the recent rerouting of Lake Shore Drive, there have been some changes in traffic flow — follow the signs to the "Museum Campus."** The #146 CTA bus goes directly to the museum. Unfortunately, it does not operate past 9:00 P.M. However, after the program anyone needing a ride to a CTA stop will have no trouble finding one—just ask any board member.

Turtle Club

The Chicago Turtle Club will meet Sunday, November 24, 1:00–3:30 P.M., at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago.

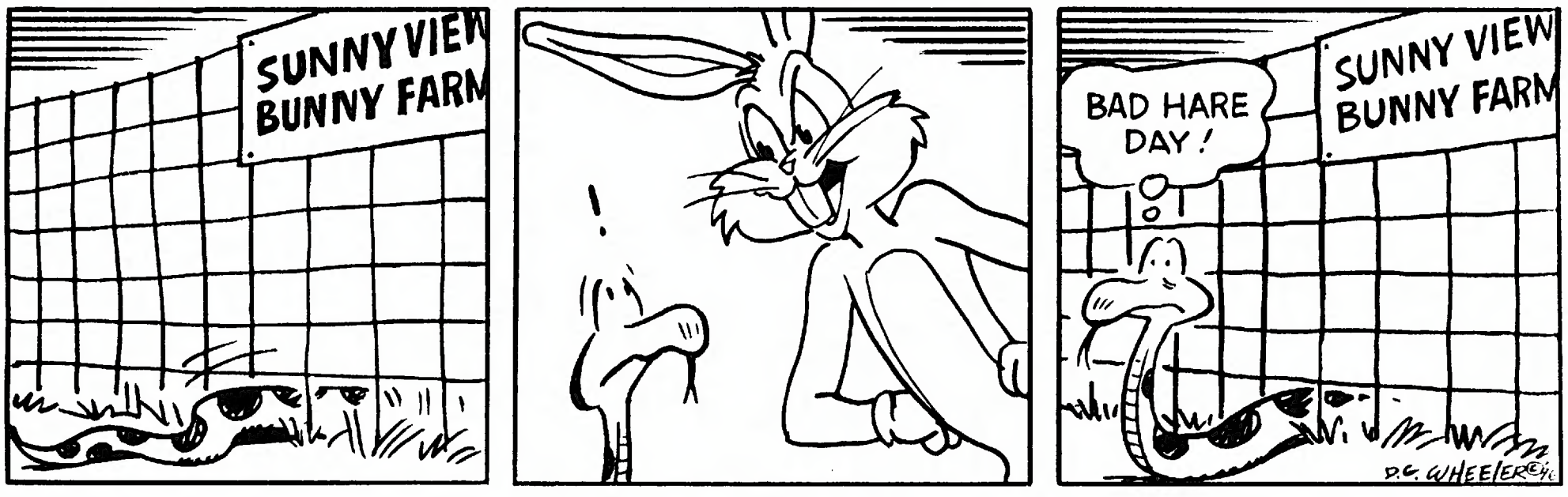
Amphibian Club

The Amphibian Club will meet Friday, December 6, 7:00–9:00 P.M., at the Skokie Public Library, 5215 Oakton. For information on this group, call Dave Golde at (847) 679-1530.

1997 MIDWEST HERPETOLOGICAL SYMPOSIUM

The 13th annual Midwest Herpetological Symposium will be hosted by the Minnesota Herpetological Society, October 17–19, 1997, in Minneapolis. The symposium will include: vendors and an icebreaker on Friday night; speakers during the day on Saturday; a Saturday night banquet and auction; and an "innovative program" on Sunday morning. Specifics will appear in the *Bulletin* when they become available.

THE ADVENTURES OF SPOT



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